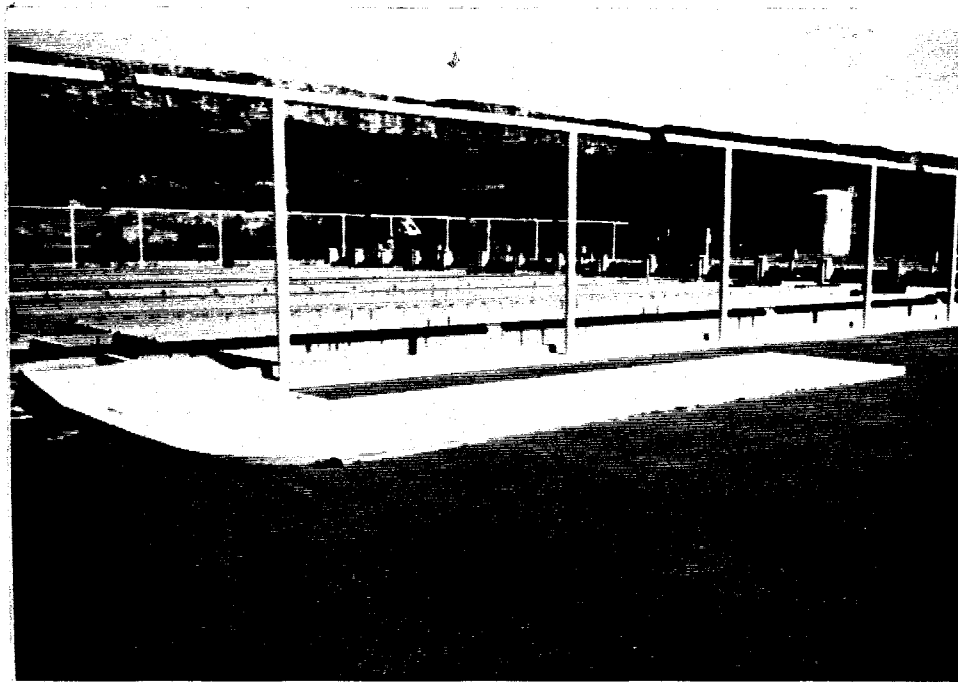




MAGIC VALLEY HATCHERY

1990 Brood Year Report



by

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January 1992

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ABSTRACT

The fourth year of steelhead production at Magic Valley Hatchery was completed with 1,269,000 "A" strain (Pahsimeroi stock) steelhead eggs received, and 1,094,200 smolts were stocked in the Salmon River at Sawtooth Hatchery, Pahsimeroi River, Shoup Bridge, Salmon River at Hammer Creek, and the Little Salmon River. The hatchery received 463,730 "B" strain (East Fork stock) steelhead eggs and returned 334,700 smolts to the East Fork Salmon River. In addition, the hatchery received 900,000 "B" strain (Dworshak, Clearwater stock) steelhead eggs and planted 633,100 smolts in the East Fork Salmon River.

A total of 2,062,000 "A" and "B" steelhead smolts were stocked weighing 501,100 pounds, and were fed 662,326 pounds of feed for a conversion of 1.32.

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INTRODUCTION

Magic Valley Steelhead Hatchery has completed its fourth year of production. The hatchery is part of the Lower Snake River Fish and Wildlife Compensation Plan (LSRCP), compensating for losses of anadromous fish caused by the Lower Snake River dams. The hatchery was constructed by the Corps of Engineers, is funded by the U.S. Fish and Wildlife Service, and operated by the Idaho Department of Fish and Game (IDFG).

OBJECTIVES

1. To hatch and rear two million "A" and "B" strain steelhead smolts for stocking in the Salmon River and its tributaries.
2. Evaluate fish rearing capabilities of Magic Valley Hatchery.

LOCATION

The hatchery is located in Twin Falls County, seven miles northwest of Filer in the Snake River Canyon. The hatchery's 125 cfs of 58°F water is piped from Crystal Springs on the north shore of the Snake River across to the hatchery site.

FACILITIES

The hatchery building houses the incubation and early rearing room with 40 upwelling incubators, 20 concrete tanks (4 ft x 3 ft x 40 ft), 2 fiberglass troughs (2 ft x 1 ft x 12 ft), and 60 automatic fry feeders. The building contains an office, laboratory, wet laboratory, shop, dormitory, enclosed storage room, covered vehicle storage area, feed storage room, walk-in freezer and mechanical room for water pumps, water chiller, and domestic water supply system.

There are 32 outdoor rearing raceways (10 ft x 3 ft x 200 ft) spanned by a moveable bridge equipped with 16 automatic Neilsen fish feeders. There are two 30,000-pound bulk feed bins, two fish feed fines shakers, and a fish feed conveyor which comprise the remainder of the feeding system.

The hatchery effluent water is treated using two waste water settling ponds, a cleaning waste pond, and a hatchery flow-through waste water pond.

The spring collection facility is located on the north shore of the Snake River and collects the spring water in a concrete channel system and delivers the water to a central collection tank. A 42-inch pipeline carries the water across the river to the hatchery site.

There are four residences on the hatchery, housing the permanent personnel.

FISH PRODUCTION

The hatchery received 1,269,100 "A" strain (Pahsimeroi stock) steelhead eggs and planted 1,094,200 smolts (13.8% rearing loss). Also received were 463,730 "B" strain (East Fork Salmon River stock) eggs and 334,700 smolts (27.8% rearing loss) were returned to the East Fork Salmon River. The hatchery also received 900,000 "B" strain (Dworshak, Clearwater stock) eggs and stocked 633,100 smolts in the East Fork Salmon River (29.7% rearing loss).

The Dworshak stock that emerged from the upwelling incubators were started on Rangen's soft moist fry feed. They were fed the soft moist diet for three weeks and then changed to Rangen's dry trout production diet for the remainder of the rearing cycle. The Pahsimeroi and East Fork stock were fed Rangen's soft moist starter for approximately 7 days and then were switched to Rangen's dry medicated (TM 50) feed for 21 days. For the remainder of their rearing cycle, they were fed Rangen's dry trout production diet. The Dworshak fish were not fed the medicated feed because they were too large at the time that it was decided to use the medicated feed.

Haskell's (1967) feeding rate formula was used to calculate the daily feed ration. The feeding rate was calculated using a growth rate of .033 inches per day, starting with 1-inch fish (swim-up fry) and ending with an 8.3-inch smolt. Fish responded well to this feeding schedule and maintained the 1 inch per month growth throughout most of the rearing period (Figure 1). A total of 662,326 pounds of feed were fed to produce 501,100 pounds of fish; a feed *conversion* of 1.32.

Piper's (1970) formulas for density index and flow index were used to calculate the densities and flows for each tank or raceway. Raceways did not exceed the desired .25 density index or 1.25 flow index until two months prior to release, when some of the raceways reached a .36 density and a 1.4 flow index without any detrimental effect on the fish (Table 1). The low water flow from the springs this year was 110 cfs (Figure 2).

The fish in the hatchery tanks were transferred to the outside raceways when they reached a density of .25 and attained a 2.0-inch (330/lb) size.

FISH DISEASE

Fish pathologists sampled fish monthly and found no virus present, but did find myxobacteria in all of the East Fork fish and some of the Pahsimeroi fish. There was a high mortality initially, but soon decreased to normal numbers. These fish were fed a medicated feed (TM 50) which helped control the spread of the bacteria.

1990 BROOD YEAR STEELHEAD

MAGIC VALLEY HATCHERY LENGTH INCREASES

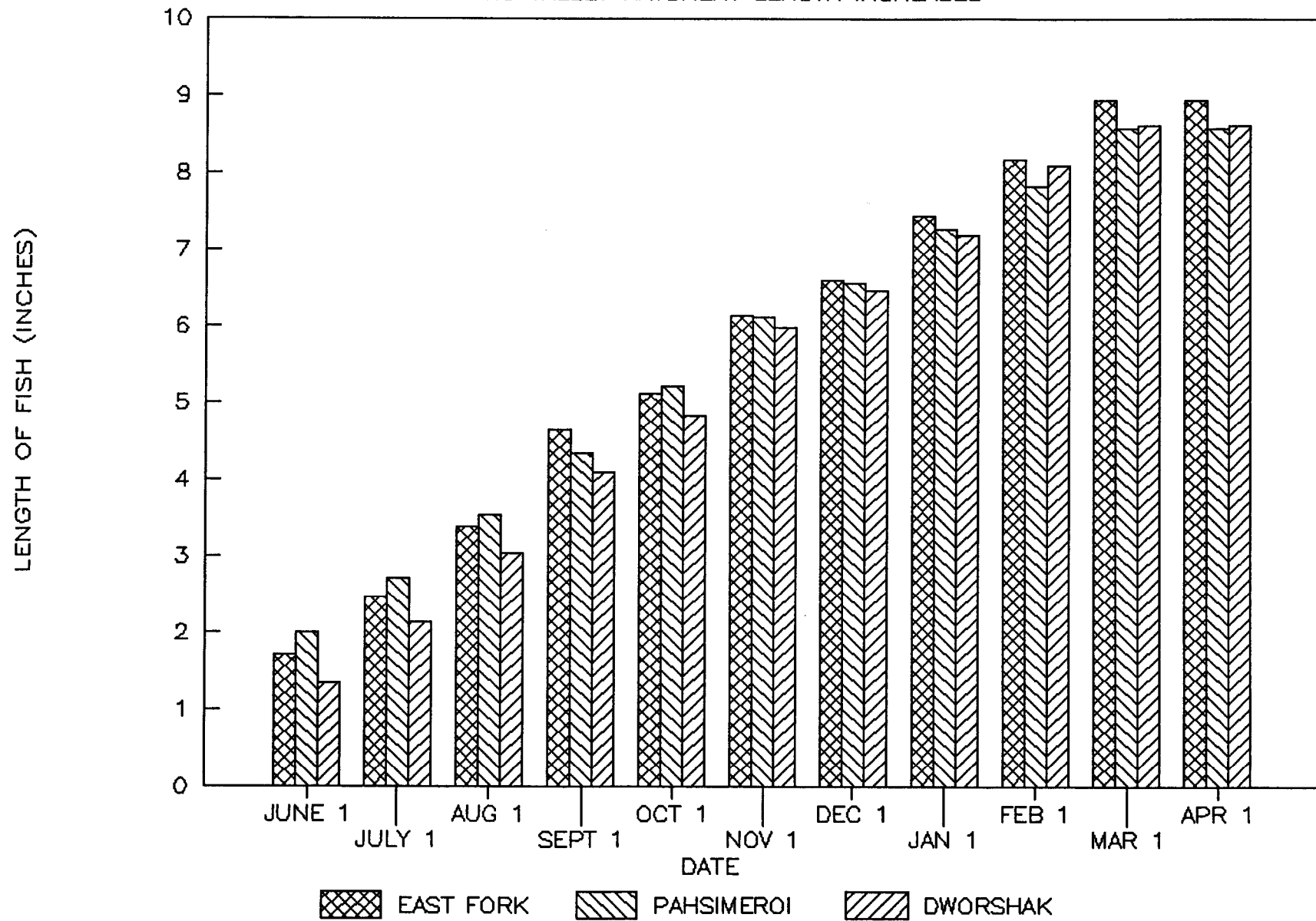
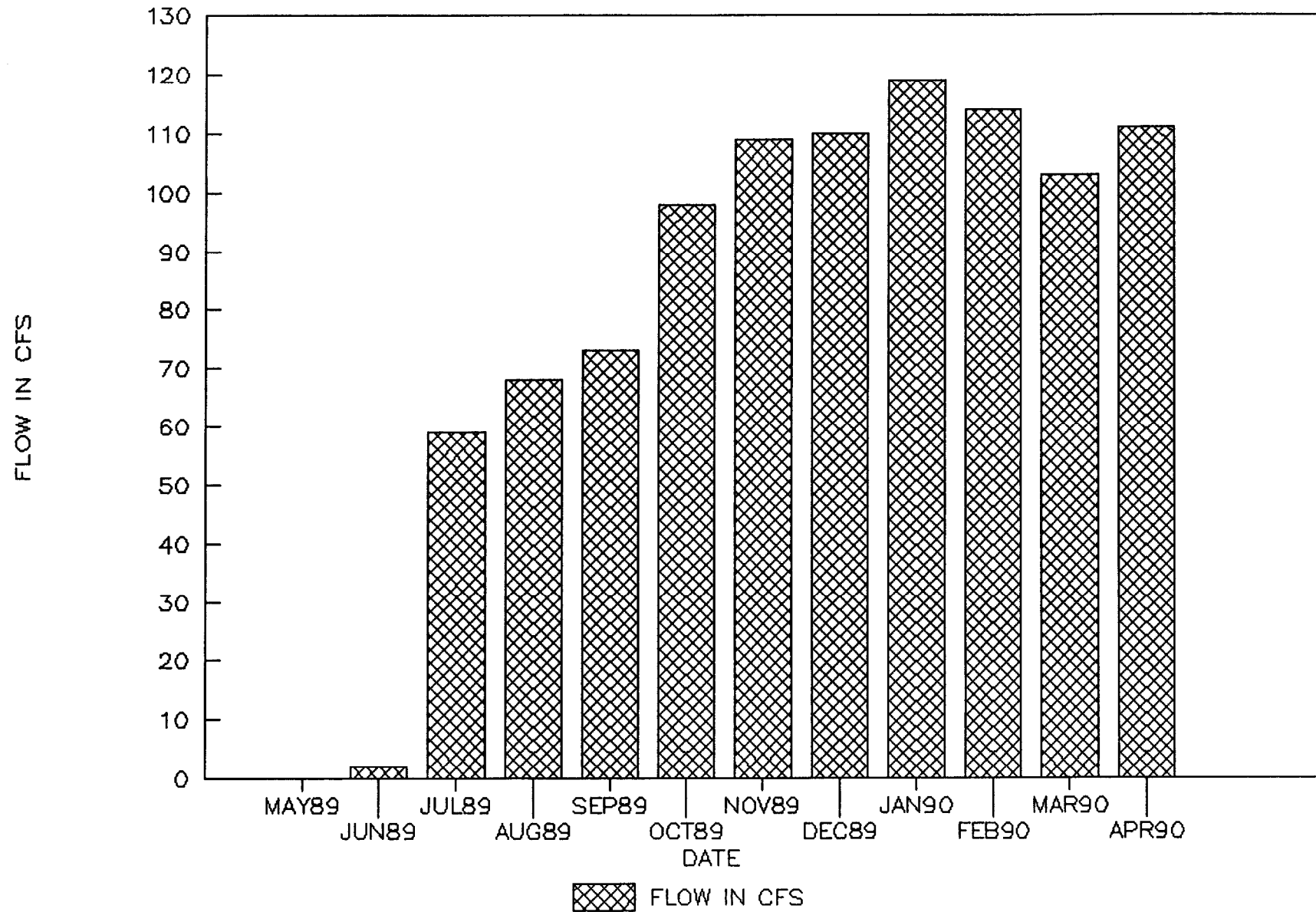


Table 1. Final raceway inventory and indices for Magic Valley Hatchery
 "A" strain and "B" strain steelhead trout.

Raceway	Strain	Fish numbers	Weight (lbs)	Number per lb	Flow index	Density index
1	B	124,100	28,200	4.40	1.14	0.32
2	B	122,500	27,200	4.50	1.11	0.32
3	B	127,800	29,050	4.40	1.17	0.33
4	B	138,900	28,950	4.80	1.21	0.34
5	B	119,800	24,200	4.95	1.02	0.29
6	A	141,300	34,925	4.05	1.37	0.39
7	A	140,100	38,400	3.65	1.46	0.42
8	A	136,500	37,475	3.64	1.42	0.41
9	A	138,200	35,400	3.90	1.38	0.41
10	A	136,800	36,800	3.72	1.42	0.40
11	A	143,900	36,150	3.98	1.42	0.40
12	A	128,600	32,250	3.99	1.26	0.39
13	A	128,800	35,950	3.58	1.37	0.39
14	B	123,600	28,600	4.32	1.14	0.32
15	B	112,100	26,050	4.30	1.03	0.29
16	B	99,000	21,500	4.60	0.88	0.25
Total A's		1,094,200	287,350	3.81	1.39	0.40
Total B's		967,800	213,750	4.53	1.07	0.30
Grand Totals		2,062,000	501,100	4.11	1.24	0.35

MAGIC VALLEY HATCHERY

FLOW IN CFS FROM CRYSTAL SPRINGS



FISH MARKING

Fin Clipping

All of Idaho's hatchery steelhead are required to have an adipose fin clip identifying them from wild steelhead. At Magic Valley Hatchery, the fin clipping crews clipped 2,134,942 fish during October and November. Fin clipping attributed to a .085% mortality rate. Personnel randomly sampled the population of fish prior to stocking and found 99.33% had an acceptable fin clip.

Coded Wire Tagging

Three groups of steelhead were coded wire tagged this year. The first group of 68,223 "B" strain steelhead (Dworshak stock) were tagged in September and released into the East Fork Salmon River in April. The second group of 68,275 "B" strain steelhead (East Fork stock) were tagged in September and released into the East Fork Salmon River in April. The third group of 68,543 "A" strain steelhead (Pahsimeroi stock) were coded wire tagged in September and released into the Salmon River at Sawtooth Hatchery, Pahsimeroi River, Shoup Bridge, Little Salmon River, and the Salmon River at Hammer Creek in April (Table 2).

PIT Tagging

Three groups of fish were PIT-tagged this year. There were 750 Dworshak and 750 East Fork fish tagged and released in the East Fork Salmon River, and 773 Pahsimeroi fish were tagged and released in the Little Salmon River. The fish were tagged in February and released in April.

STOCKING

The 1990 brood year steelhead were released into the various Salmon River drainages between April 8, 1991 and April 27, 1991. A total of 2,062,000 fish were stocked, which averaged 4.11 fish per pound for a total of 501,100 pounds of fish (Table 2).

HATCHERY MAINTENANCE

Maintenance continued on some of the equipment. The moveable feeding bridge had guide wheel bearings replaced, drive wheels replaced, fish feeders rewired, and ground fault receptacles installed.

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Table 2. Steelhead smolt distribution in the Salmon River and tributaries.

Destination	Weight	Number/pound	Number released
East Fork Salmon River	213,750	4.54	967,800
Sawtooth Hatchery	94,700	3.70	364,700
Little Salmon River	84,600	3.85	310,300
Pahsimeroi River	35,500	3.80	135,100
Salmon River Hammer	47,750	3.94	186,300
Salmon River Shoup	24,800	4.05	97,800
Grand Total	501,100	4.11	2,062,000

TABLES

STAFFING

The hatchery is staffed with four permanent employees: Hatchery Superintendent III, Hatchery Superintendent II, Fish Culturist, and Roving Fish Culturist. Several temporary positions of bio-aides, YCC workers, and laborers are employed at various times of the year to assist with fish culture duties during peak production, transportation, and in the absence of the Roving Fish Culturist.

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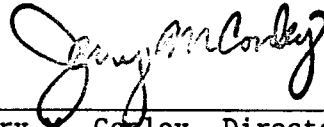
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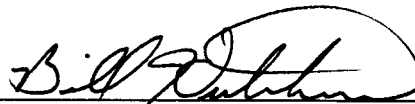
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